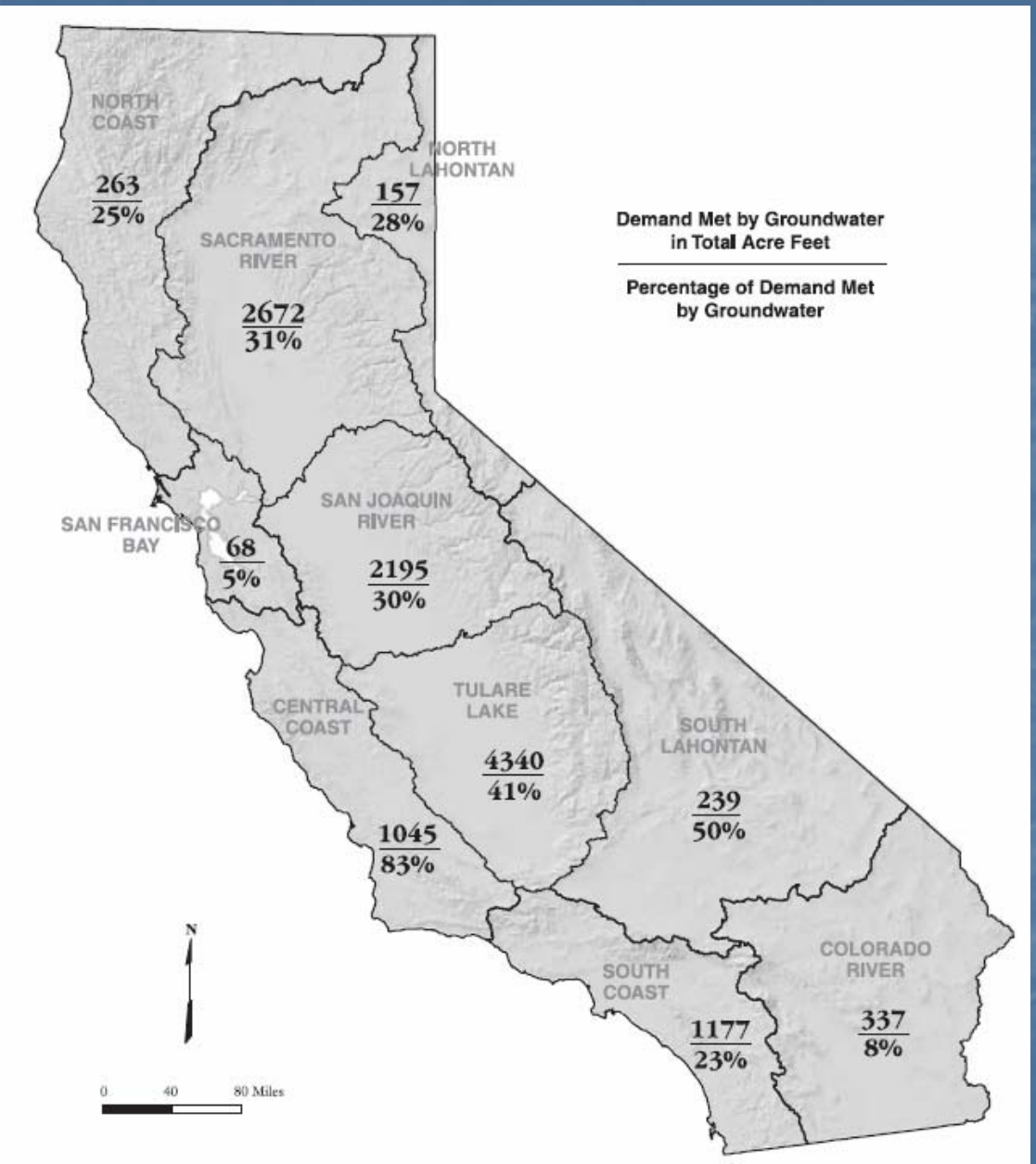
An Overview of Groundwater Programs in California

Bay-Delta Public Advisory Committee
Water Supply Subcommittee
January 9, 2008

Eric Hong
Division of Planning and Local Assistance
California Department of Water Resources



Groundwater Demand for Agricultural and Urban Use

13 million acre-feet pumped

1-2 million acre-feet overdraft

30% on average, higher in dry years

Some cities and coastal basins entirely dependent

Many rural users entirely dependent

1995 population - 32 million

2020 population - 48 million

Resource Management Strategies

Reduce Water Demand

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency

Improve Operational Efficiency & Transfers

- Conveyance
- System Reoperation
- Water Transfers

Increase Water Supply

- Conjunctive Management and Groundwater Storage
- Desalination –Brackish and Seawater
- Precipitation Enhancement
- Recycled Municipal Water
- Surface Storage – CALFED
- Surface Storage - Regional/Local

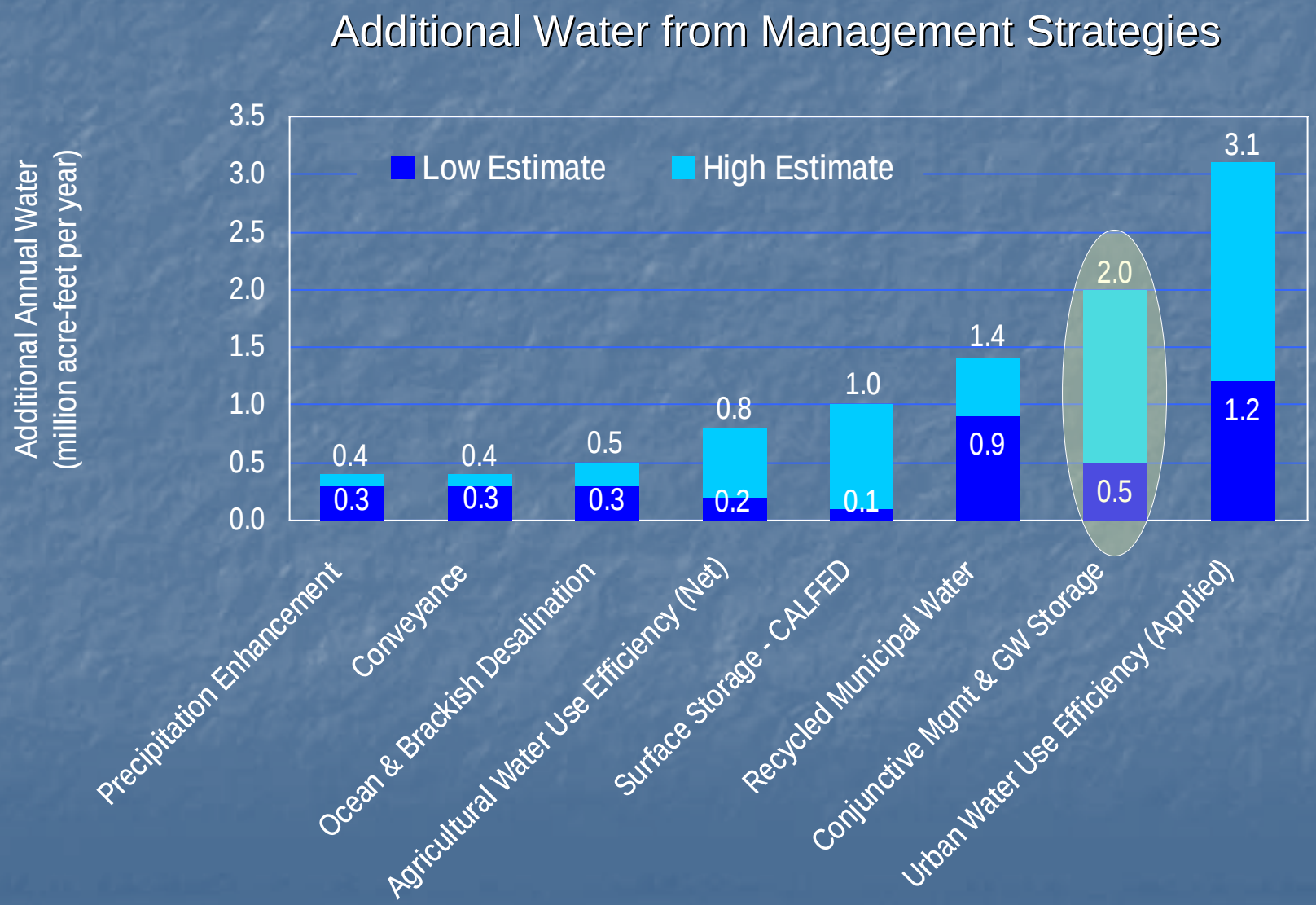
Improve Water Quality

- Drinking Water Treatment and Distribution
- Groundwater/Aquifer Remediation
- Matching Quality to Use
- Pollution Prevention
- Urban Runoff Management

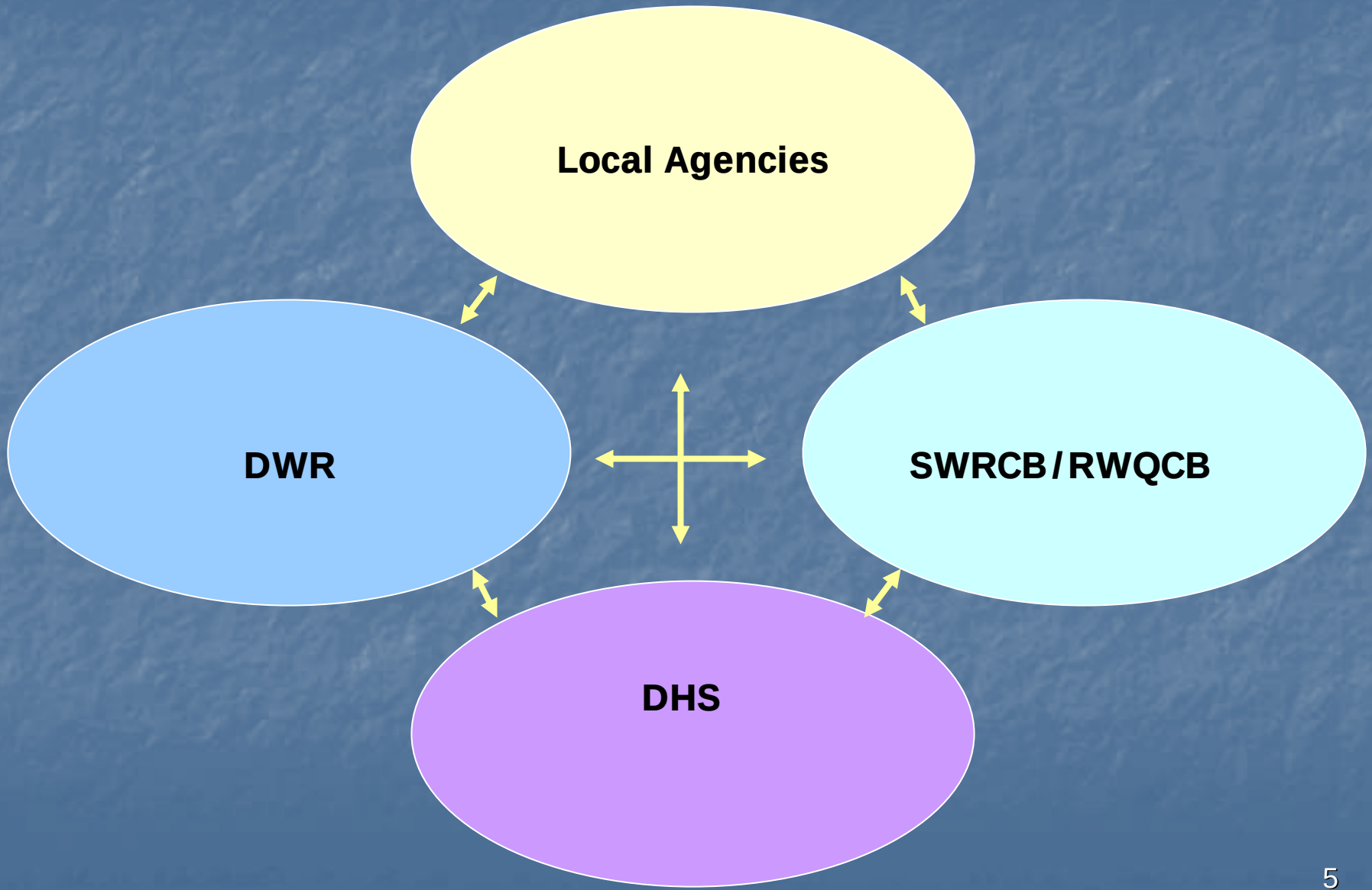
Practice Resource Stewardship

- Agricultural Lands Stewardship
- Economic Incentives (Loans, Grants, and Water Pricing)
- Ecosystem Restoration
- Floodplain Management
- Recharge Areas Protection
- Urban Land Use Management
- Water-Dependent Recreation
- Watershed Management

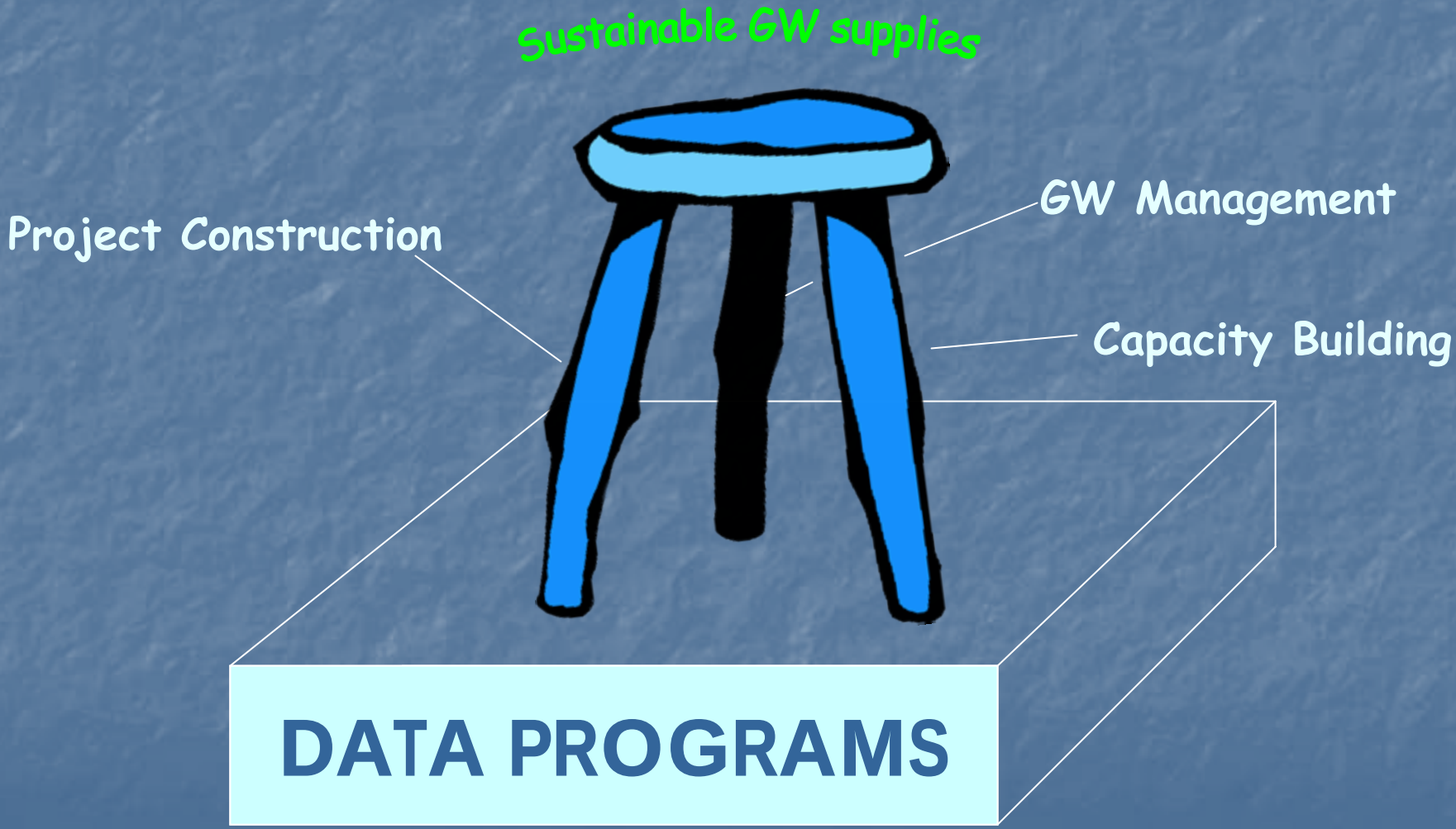
California Water Plan



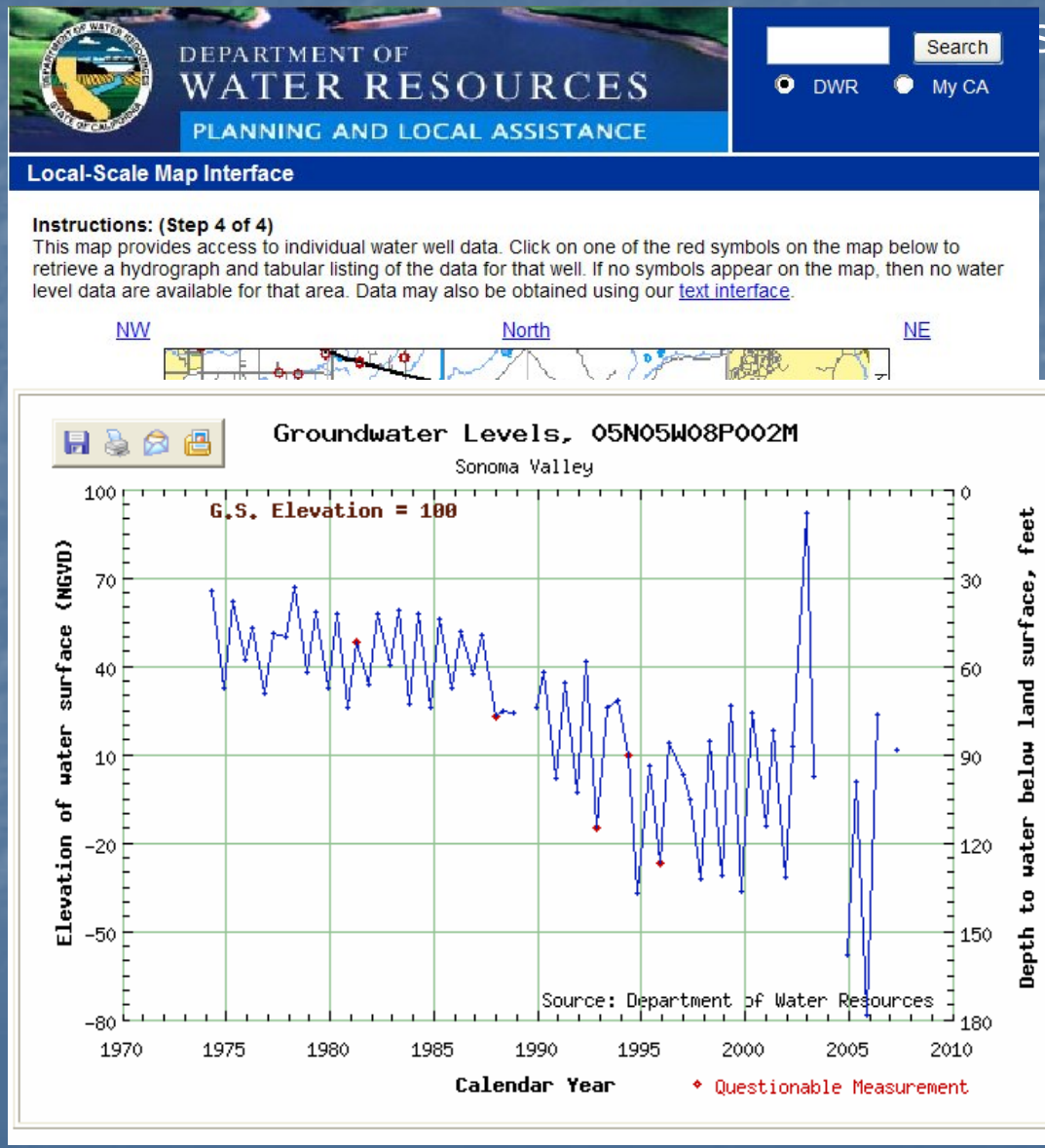
Groundwater Management



DWR's Role


Sustainable GW supplies
Project Construction
GW Management
Capacity Building
DATA PROGRAMS

Groundwater Data

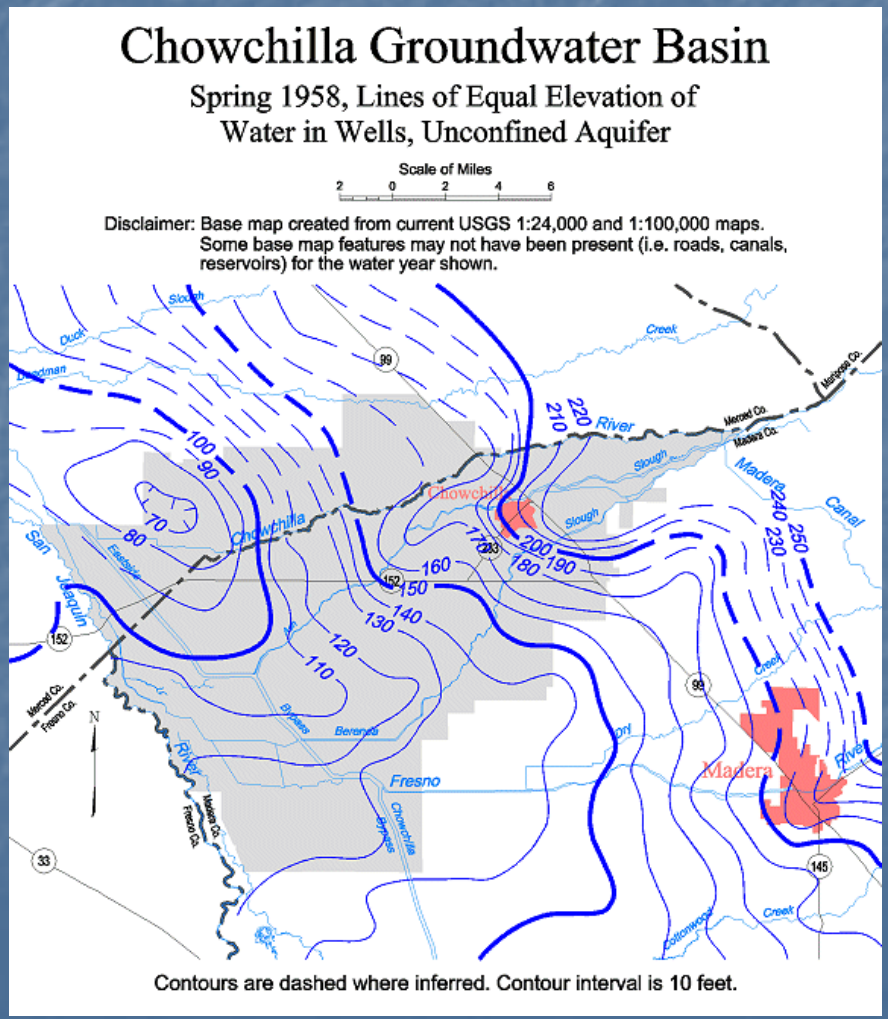


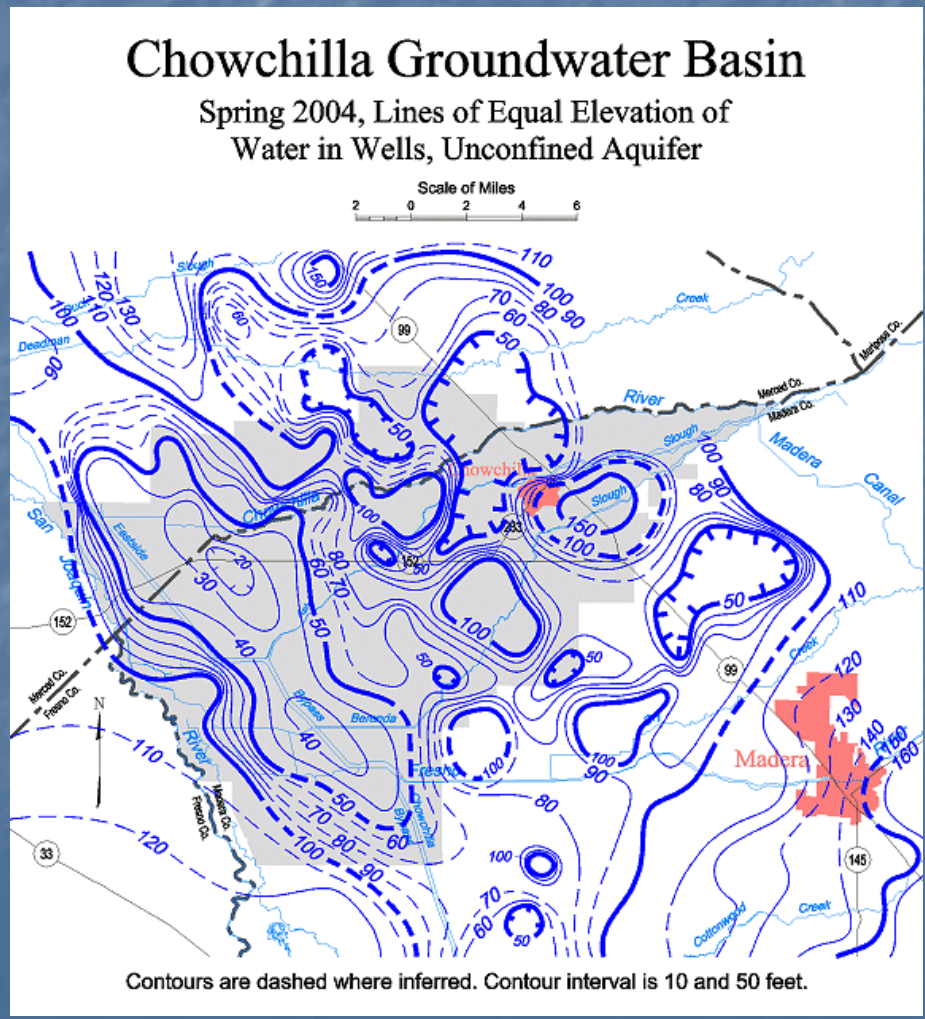
Water Data Library

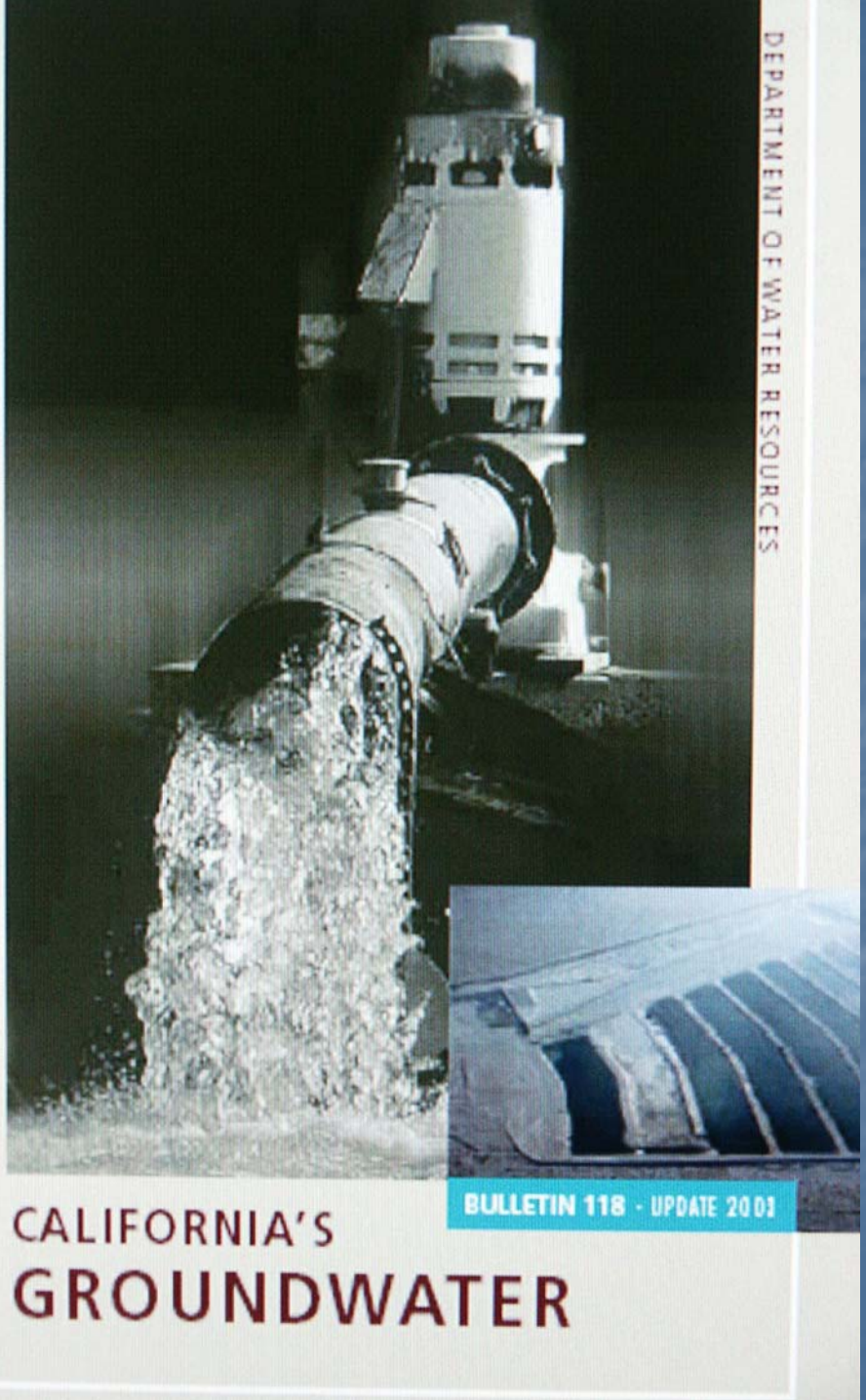
- Map based interface for groundwater level data

Groundwater Data

- Contour maps



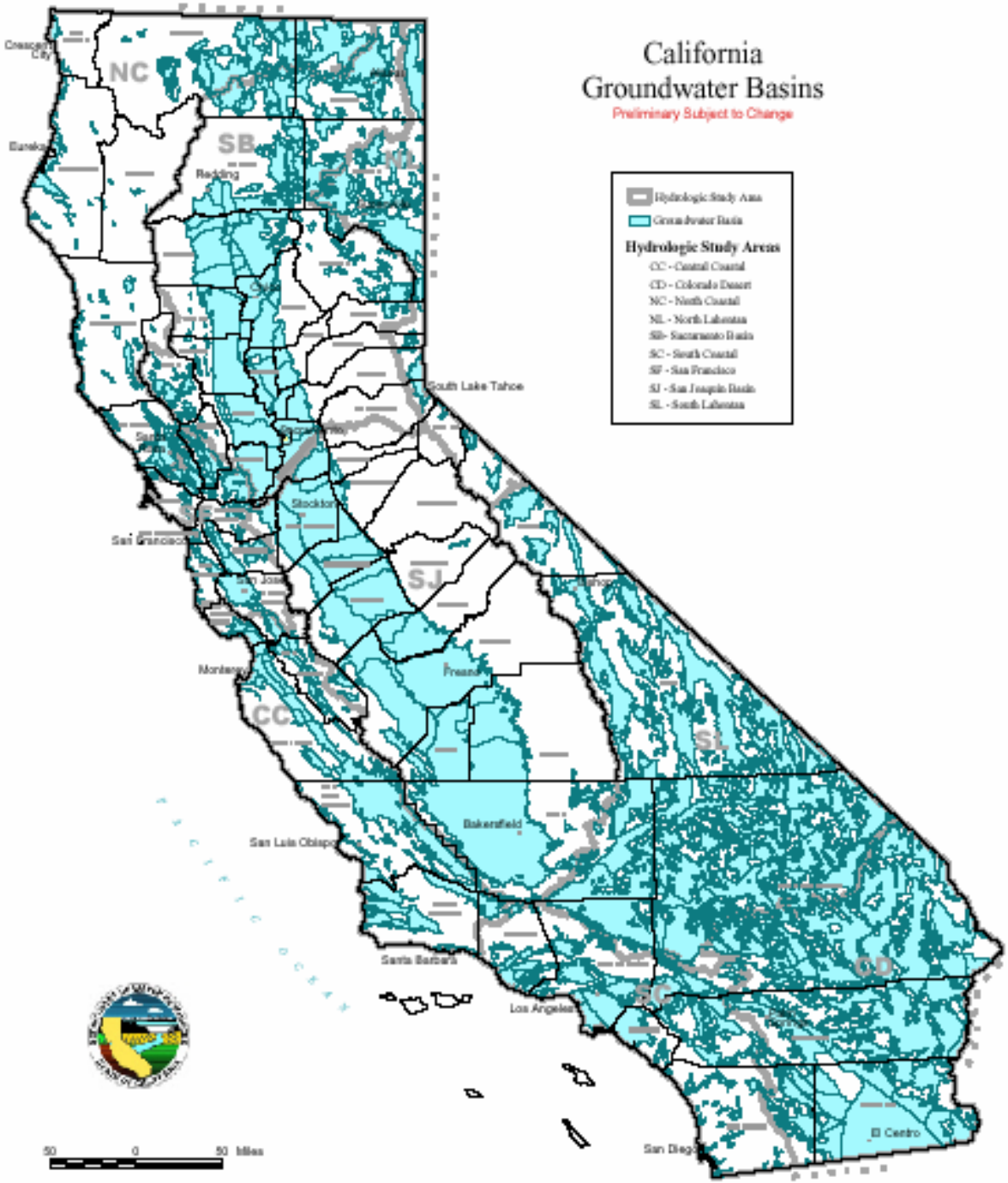




DWR Bulletin 118

Key Findings and Recommendations

- Groundwater Management Plans
- State technical and financial support
- Characterize overdraft
- Land use relationships
- Water supply – Water quality
- Improved data collection and dissemination



Bulletin 118

- 500+ groundwater basins
- Groundwater primer
- Water law
- Regional overviews
- Basin descriptions

Colusa Subbasin

- Groundwater Basin Number: 5-21.52
- County: Colusa, Glenn, Tehama
- Surface Area: 918,380 acres (1,434 square miles)

Basin Boundaries and Hydrology

The portion of the Sacramento Valley that comprises the Colusa Subbasin is bounded on the east by the Sacramento River, on the west by the Coast Range and foothills, on the south by Cache Creek, and on the north by Stony. Annual precipitation ranges from 17- to 27-inches with higher precipitation occurring to the west.

Hydrogeologic Information

Water-Bearing Formations

The Colusa Subbasin aquifer system is composed of continental deposits of late Tertiary to Quaternary age. Quaternary deposits include Holocene stream channel and basin deposits and Pleistocene Modesto and Riverbank formations. The Tertiary deposits consist of the Pliocene Tehama Formation and the Tuscan Formation. Except where noted, the following information is taken from USBR (1960).

Holocene Stream Channel Deposits. These deposits consist of unconsolidated gravel, sand, silt, and clay derived from the erosion, reworking, and deposition of adjacent Tehama Formation and Quaternary stream terrace deposits. The thickness varies from 1- to 80-feet (Helley and Harwood 1985). These deposits represent the upper part of the unconfined zone of the aquifer and are moderately-to-highly permeable; however, the thickness and areal extent of the deposits limit the water-bearing capability.

Sacramento Valley Groundwater Basin 5-21

Return to groundwater basin's Table of Contents

Go to Subbasin:

5-21.50 Red Bluff
5-21.51 Corning
5-21.52 Colusa
5-21.53 Bend
5-21.54 Antelope
5-21.55 Dye Creek
5-21.56 Los Molinos
5-21.57 Vina
5-21.58 West Butte
5-21.59 East Butte
5-21.60 North Yuba
5-21.61 South Yuba
5-21.62 East Sutter
5-21.63 West Sutter
5-21.64 North American
5-21.65 South American
5-21.66 Solano
5-21.67 Yolo
5-21.68 Capay Valley

515 basins and subbasins identified and summarized

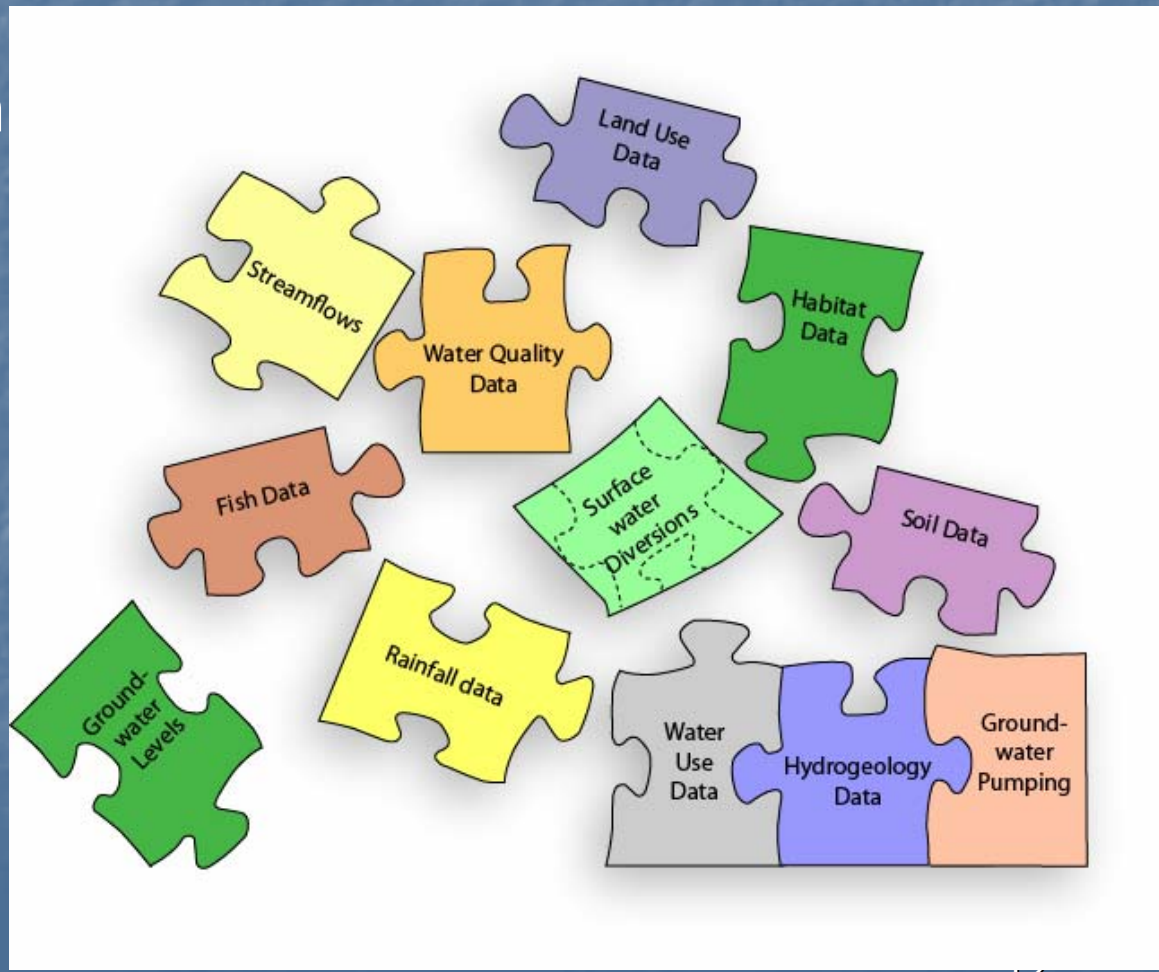
- Hydrogeology
- Groundwater levels
- Groundwater budget
- Water quality
- Well yields
- Monitoring programs
- Basin management
- References

IWRIS
Integrated Water Resources Information System

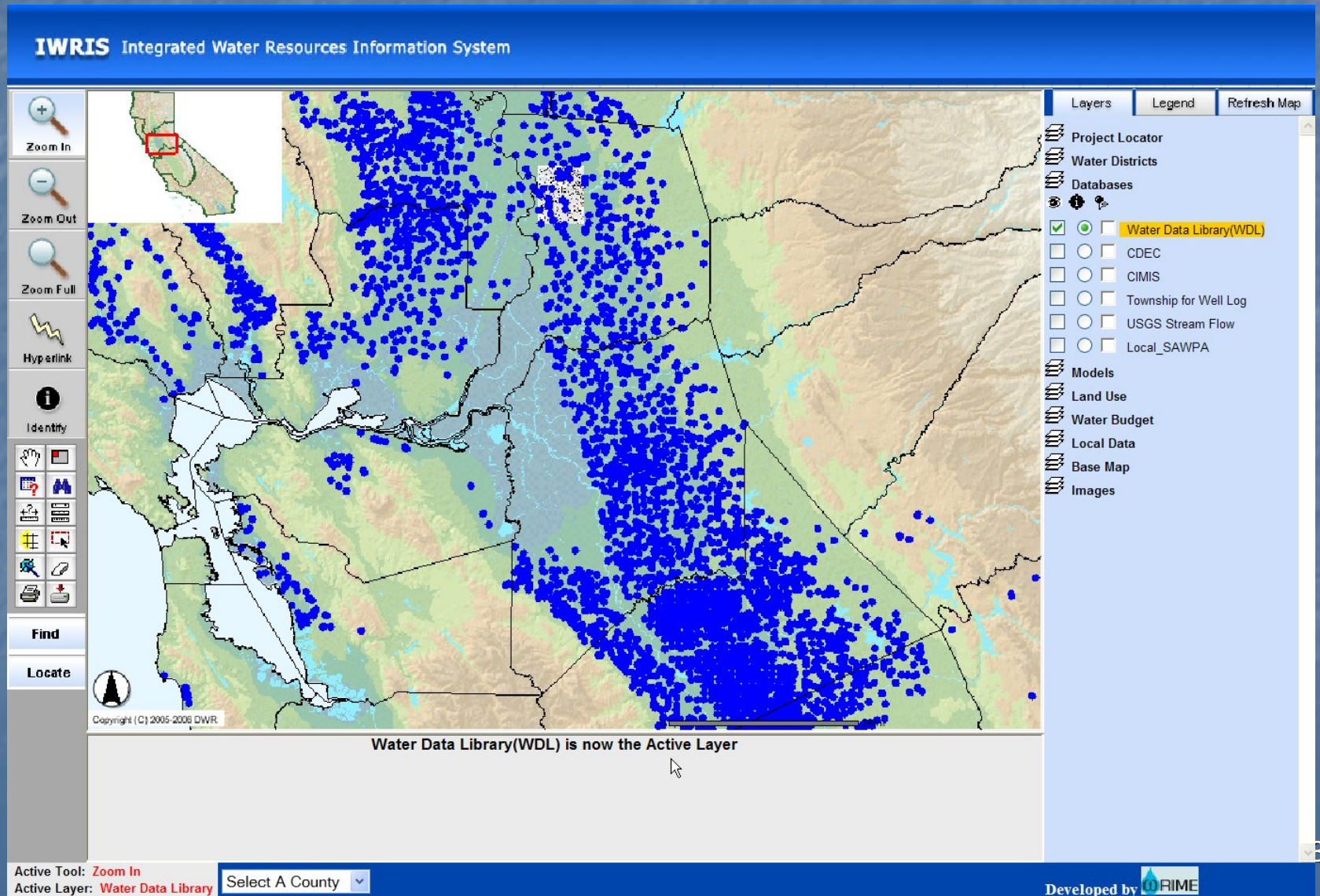
Lots of Data/Information

in Lots of Places

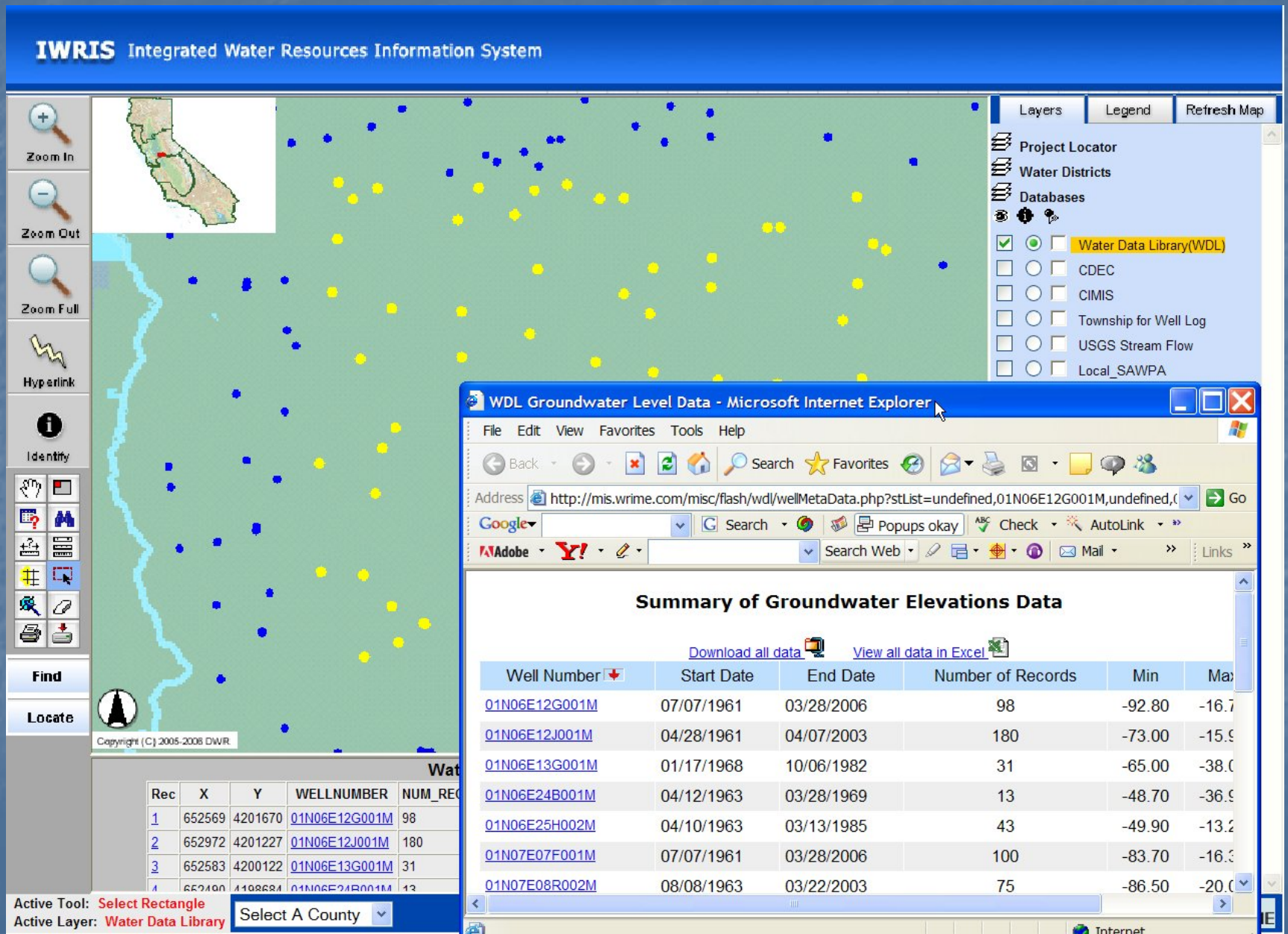
in Lots of Formats



IWRIS – Integrated Water Resources Information System



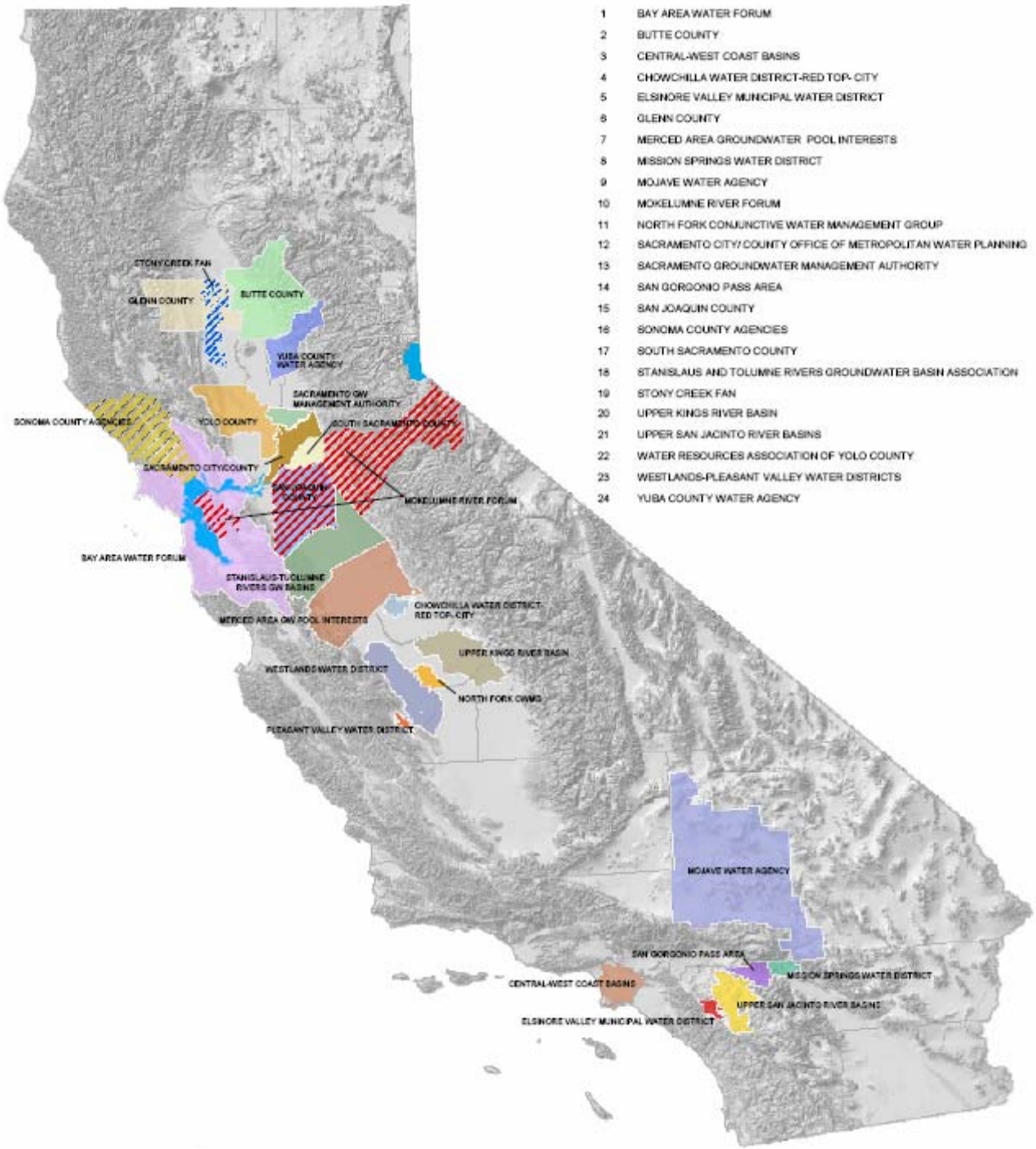
IWRIS – GIS-based Data Access



Capacity Building

DWR Conjunctive Management Principles

- Locally driven planning process,
- Local control of proposed projects
- Voluntary implementation of projects
- Priority for in-basin water needs
- Compensation for out-of-basin transfers
- Basin-wide planning and monitoring
- Flexibility



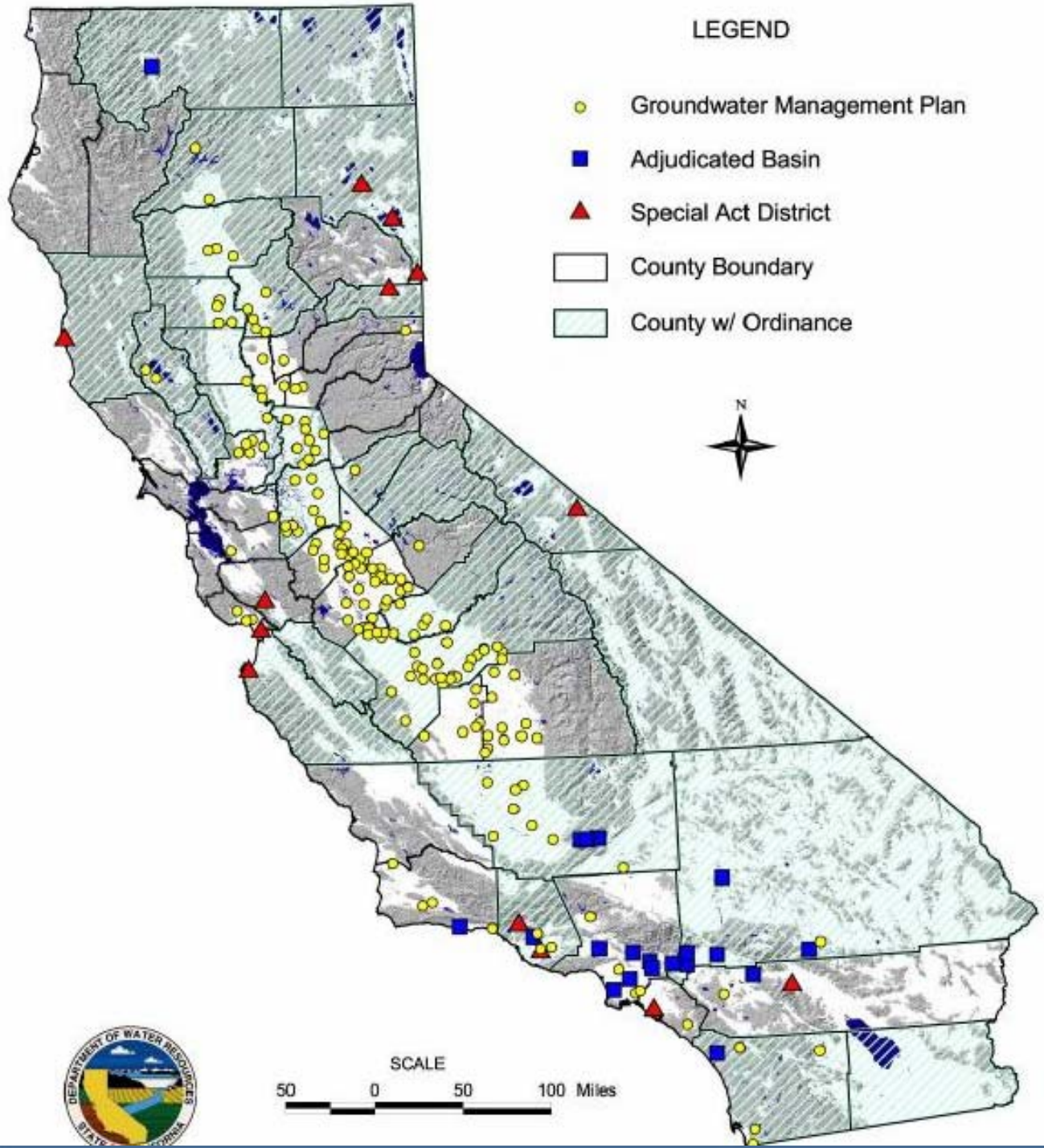
Local Partnerships

- Technical assistance
- Facilitation
- Stakeholder driven planning
- Local development of projects

Groundwater Management

AB 3030

- Local authority for groundwater management
- Voluntary implementation
- SB 1938 placed requirements on Groundwater Management Plans


LEGEND
Groundwater Management Plan
Adjudicated Basin
Special Act District
County Boundary
County w/ Ordinance
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SCALE
50 0 50 100 Miles

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Hydrologic Region
Groundwater Basin

California's Groundwater
Bulletin 118

San Joaquin Valley Groundwater Basin
Eastern San Joaquin Subbasin

Groundwater Basin Number: 5-22.01

- County: San Joaquin, Stanislaus, and Calaveras
- Surface Area: 707,000 acres (1,105 square miles)

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Hydrologic Region
Groundwater Basin

California's Groundwater
Bulletin 118

Agency	Parameter	Number of wells /measurement frequency
DWR	Groundwater levels	99 /semiannually, and 15 /monthly
San Joaquin County Flood Control and Water Conservation District (SJCFC) and cooperators	Groundwater levels	246 /semiannually
SJCFC and cooperators	TDS, turbidity, chloride, and EC	Approximately 26 /annually
Department of Health Services and cooperators	Title 22 water quality	540 /annually

Basin Management

Groundwater management: (DWR 1999)	San Joaquin County enacted a groundwater management ordinance in 1996; AB 3030 plans have been adopted by the following entities: County of Stanislaus ; North San Joaquin WCD (3/5/96); Oakdale ID (9/22/95); San Joaquin County FC&WCD (2/11/97); South San Joaquin ID (2/14/95); Stockton East WD (11/1/96); and Woodbridge ID.
Water agencies: Public and Private	Lockeford CSD, North Delta WA, North San Joaquin WCD, Oakdale ID, City of Lathrop WD, City of Lodi Service Area, City of Manteca WSA, Calaveras County WD, California Water Service Company, Central Delta WA, Central San Joaquin WCD, City of Escalon WSA, Reclamation District No. 828, River Junction Reclamation District No. 2064, Rock Creek WD, South Delta WA, South San Joaquin ID, Stockton East WD, Valley Springs PUD, Woodbridge ID, Woodbridge WUCD, and City of Stockton MUD. Northeastern San Joaquin County Groundwater Banking Authority adopted a groundwater management plan.

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Last update 1/20/06

Pages Attachments Comments

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423 East St. Charles Street, Post Office Box 846
San Andreas, California 95249
Ph. # (209) 754-3543, Cust. Serv. Fax # (209) 754-0270, Admin. Fax # (209) 754-1069

WATER CONSERVATION NOTICE FOR Customers in the RANCHO CALAVERAS Jenny Lind Service Area
Updated 8/11/06

The Calaveras River, one of the sources for our water

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Local Groundwater Assistance Grants AB 303 (2000)

- $27 million in grants over five fiscal years
- 128 studies and projects
  - Monitoring wells, sampling and analysis
  - Groundwater modeling
  - Aquifer testing and pilot studies
  - Well destruction
  - Groundwater storage feasibility studies
  - Management plan development

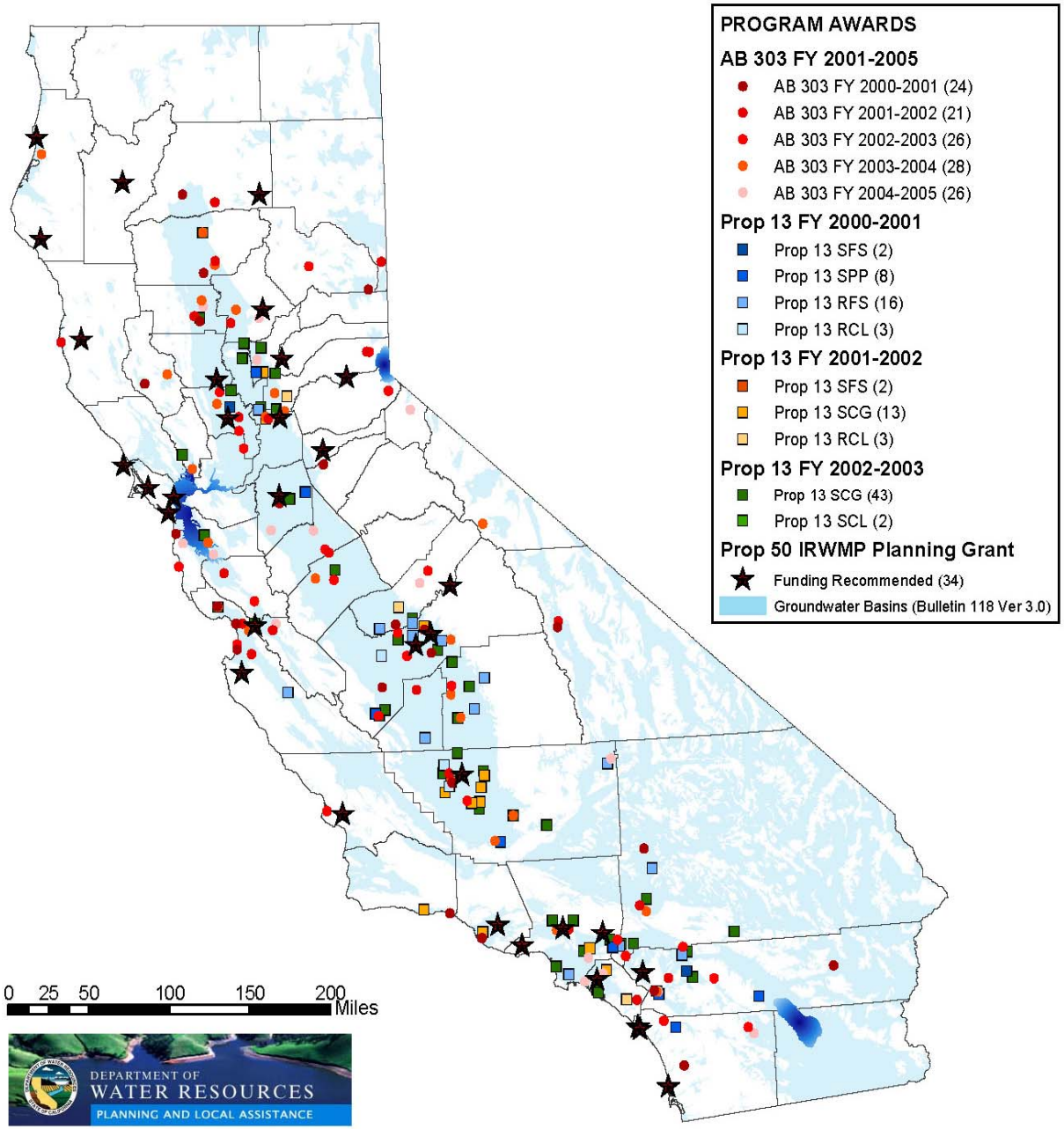
Local Groundwater Assistance Schedule – FY 2007-08

- FY 2007/2008 – $ 6.4 million of Prop. 50 funds
- December 11, 2007 – 122 applications submitted for $27.6 million
- December-March – Technical reviews
- April 2008 – Technical Advisory Panel and Public Meeting
- May 2008 – DWR awards grant funds

Project Construction

Construction Grants

- Proposition 13 provided over $250 million for construction of conjunctive use facilities
  - Funded 63 projects
  - Yield of over 300,000 acre-feet of water annually
  - Total project costs over $1 billion through local cost share
- Proposition 50 provides $500 million for multiple project categories



Proposition 13 Grants

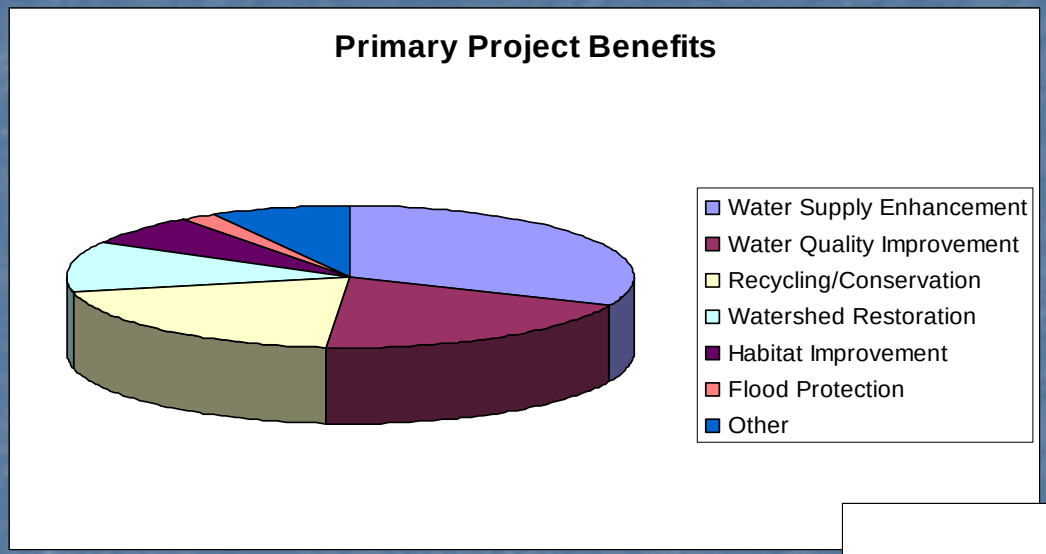
- $230 million grants and loans
- 34 construction projects
- $1 billion investment (including local share)
- 300,000 acre-feet of additional water supply

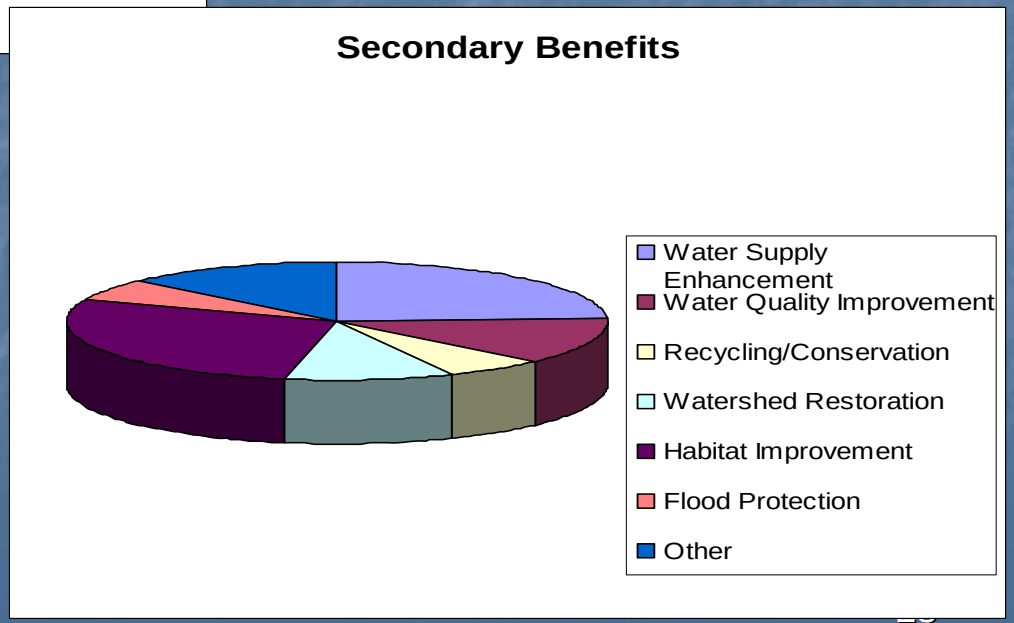
Proposition 50
Groundwater Related Projects

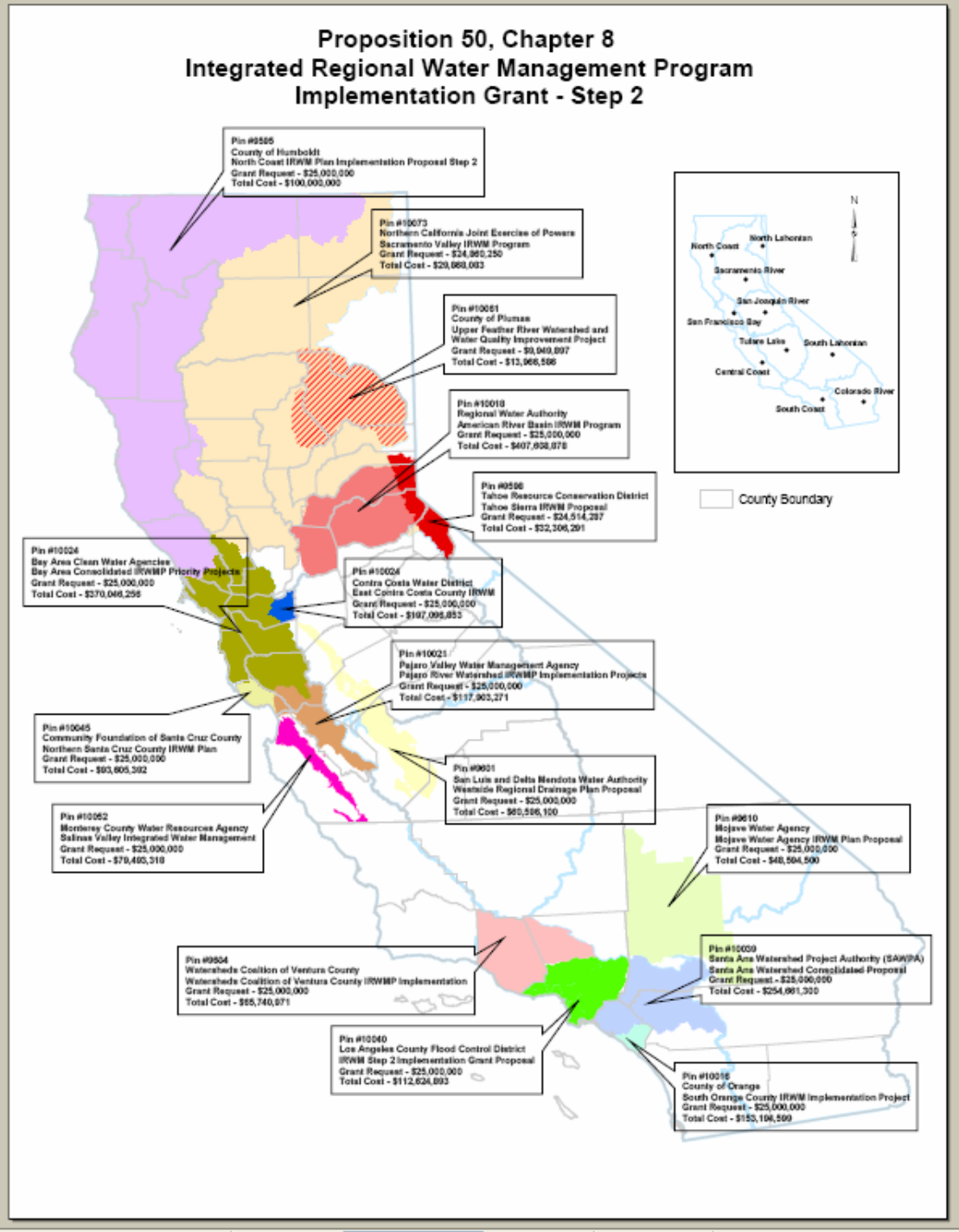
- 47 of 173 projects submitted in Proposition 50, Round 1 were related to groundwater

- Of the $380 million requested in total grant funding, $129 million was for the 47 groundwater related projects. Local cost share for the 47 groundwater projects was $343 million

Benefits of IRWM Grants







Proposition 50 IRWM Implementation Grants, Round 1

- $307 million to 16 proposals
- $1.7 billion local cost share
- 500,000 acre-feet of new supply

Proposition 50 IRWM Implementation Grants, Round 2

- 28 applications received requesting $198 million
- 9 applicants invited back for Step 2

Schedule

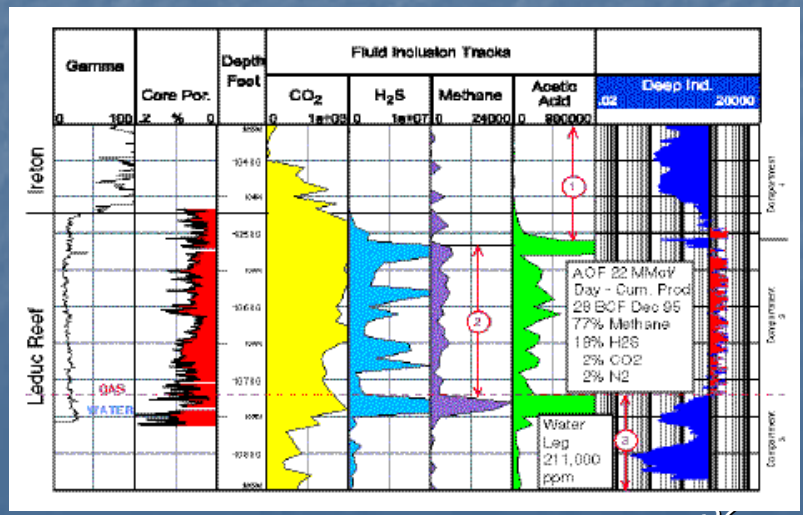
- Step 2 applications due January 28, 2008

Proposition 84
IRWM

- $1 Billion for IRWM
- Allocated to Geographic Areas – Not Statewide
- May be multiple IRWM Regions in a funding area
- $100 million Interregional/ Unallocated
  - $300 million from Proposition 1E

Needs and Issues

- Technical
  - Stream/Aquifer Interaction
  - Climate change
  - Water in storage
  - Environmental Benefits/Consequences
  - Water Quality Implications of Recharge
  - Subsidence Measurement and Monitoring
  - Improved Models
  - Energy relationships
  - Site Specific Factors
  - Science-based Policy



Needs and Issues

- Political/Institutional
  - Land use
  - Water agency vs. County control
  - Public trust vs. private use
  - Water quality
- Legal
  - Water rights
  - Storage rights
- Economic
  - Third party impacts
  - Benefit/Cost
  - Public funding

Questions???